In one embodiment, a calibration process is performed to obtain average amplitudes of AGC fields on a zone-by-zone basis for a head associated with a disk surface. These average amplitudes of AGC fields are then stored onto the disk surface for later use.

After the disk drive has been turned on, the average amplitudes of the AGC fields are read from the disk surface and are stored in memory. When a write operation is to be performed, the head measures the amplitude of the AGC field associated with a data sector onto which a block of data is to be stored. The measured amplitude of the AGC field is compared to the average amplitude of the AGC fields for the zone associated with the AGC field being read. If the difference between the measured amplitude of the AGC field and the average amplitude for the AGC fields for the zone is outside of a certain tolerance, a high fly write condition may exist. Accordingly, data written during a high fly write condition may be rewritten when the flying height has returned to normal or some other remedial action may be taken.

In one embodiment, upon detection of a high fly write condition, another attempt is made to write data onto the disk surface. In such case, the disk makes one complete revolution and a measurement is again taken of the amplitude of the AGC field to see if the difference between it and the average amplitude of the AGC fields for the zone is within the certain tolerance.

In one embodiment, upon detection of a high fly write condition, a burnishing process is performed. The burnishing process may include moving the head back and forth between an inner diameter and outer diameter of the disk surface while the head contacts the disk surface due to a slowing of the spindle motor.

In one embodiment, a running average of amplitudes of a predetermined number of AGC fields may be maintained on a zone-by-zone basis. In such case, a comparison is made between the measured AGC field associated with the data sector onto which a block of data is being written and the running average for the zone associated with the data sector. If the difference between the measured AGC field and the running average is outside a certain tolerance, a high fly write condition may exist.

Other objects, features, embodiments and advantages of the invention will be apparent from the following specification taken in conjunction with the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a diagrammatic representation of a disk drive in which the present invention may be implemented;

Figure 2 is a diagrammatic representation illustrating a disk surface which has been formatted to be used in conjunction with a sectored servo system and which is used in connection with an embodiment of the present invention;

Figure 3 is a diagrammatic representation of a sectional view of a disk and an associated head illustrating the flying height of the head above the disk surface;

Figure 4 is a diagrammatic representation of a portion of information on a disk surface used in connection with an embodiment of the present invention;

Figure 5 is a simplified flow diagram illustrating one manner of performing a calibration technique used in an embodiment of the present invention; and,

Figure 6 is a simplified flow diagram illustrating one manner of performing a high fly write detection and recovery technique used in an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

While this invention is susceptible of embodiments in many different forms, there are shown in the drawings and will herein be described in detail, preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspects of the invention to the embodiments illustrated.

A disk drive 10 with which the present invention may be used is illustrated in **Figure 1**. The disk drive comprises a disk 12 that is rotated by a spin motor 14. The spin motor 14 is mounted to a base plate 16.

The disk drive 10 also includes an actuator arm assembly 18 having a head 20 (or transducer) mounted to a flexure arm 22, which is attached to an actuator arm 24 that can rotate about a bearing assembly 26 that is attached to the base plate 16. The actuator arm 24 cooperates with a voice coil motor 28 in order to move the head 20 relative to the disk 12. The spin motor 14, voice coil motor 28 and head 20 are coupled to a number of electronic circuits 30 mounted to a printed circuit board 32. The electronic circuits 30 typically include a read channel chip, a microprocessor-based controller and a random access memory (RAM) device.